

List of the Claims:

1. (previously presented) A method of generating information for controlling power consumption of a device, the method comprising:
 - (a) performing an off-line optimization analysis comprising optimization experiments to optimize a quality of service measure and power consumption of the device based on a plurality of control factors for controlling the device;
 - (b) performing a variance analysis on results from said optimization experiments;
 - (c) generating, from results of the optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to power consumption of the device; and
 - (d) generating a power management profile relating the quality of service measure and the power consumption of the device based on results of the variance analysis, said first data and said second data.
2. (previously presented) The method of claim 1, wherein (a) performing comprises performing a fractional factorial style experiment.
3. (previously presented) The method of claim 1, wherein (a) performing comprises performing a full factorial style experiment.
4. (previously presented) The method of claim 1, wherein (a) performing comprises performing one of a Design of Experiments (DOE) experiment, an Orthogonal Array experiment, a Latin Square Design experiment, and a Taguchi style experiment.
5. (original) The method of claim 1, further comprising selecting one of the plurality of control factors based on the power management profile, wherein the selected control factor is adjusted to control power consumption of the device.
6. (previously presented) The method of claim 5, wherein (d) generating comprises filtering results of the optimization analysis.

7. (previously presented) The method of claim 6, wherein selecting comprising selecting one of the plurality of control factors by using the power management profile to determine a power consumption level corresponding to a selected quality of service level, determining a result of the optimization analysis corresponding to the determined power consumption level and selected quality of service level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

8. (previously presented) The method of claim 6, wherein selecting comprises selecting one of the plurality of control factors by using the power management profile to determine a quality of service level corresponding to a selected power consumption level, determining a result of the optimization analysis corresponding to the determined quality of service level and selected power consumption level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

9. (previously presented) A method of generating information for controlling a device, the method comprising:

(a) performing an off-line optimization analysis comprising optimization experiments to optimize a quality of service measure and an operating condition of the device based on plurality of control factors for controlling the device;

(b) performing a variance analysis on results from said optimization experiments;

(c) generating, from results of the optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to the operating condition of the device; and

(d) generating a management profile relating the quality of service measure and the operating condition of the device based on results of the variance analysis, said first data and said second data.

10. (previously presented) The method of claim 9, wherein (a) performing comprises performing a fractional factorial style experiment.

11. (previously presented) The method of claim 9, wherein (a) performing comprises performing a full factorial style experiment.

12. (previously presented) The method of claim 9, wherein (a) performing comprises performing one of a Design of Experiments (DOE) experiment, an Orthogonal Array experiment, a Latin Square Design experiment, and a Taguchi style experiment.

13. (original) The method of claim 9, further comprising selecting one of the plurality of control factors based on the management profile, wherein the selected control factor is adjusted to control the operating condition of the device.

14. (previously presented) The method of claim 13, wherein (d) generating comprises filtering results of the optimization analysis.

15. (previously presented) The method of claim 14, wherein selecting comprising selecting one of the plurality of control factors by using the management profile to determine a level of the operating condition corresponding to a selected quality of service level, determining a result of the optimization experiment corresponding to the determined level of the operating condition and selected quality of service level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

16. (previously presented) The method of claim 14, wherein selecting comprises selecting one of the plurality of control factors by using the management profile to determine a quality of service level corresponding to a selected operating condition level, determining a result of the optimization analysis corresponding to the determined quality of service level and selected operating condition level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

17. (previously presented) An apparatus suitable for adaptively controlling a system, the apparatus comprising:

an optimization unit configured to perform an off-line optimization analysis comprising optimization experiments to optimize a quality of service measure and an operating condition of the system based on a plurality of control factors for controlling the system, wherein the optimization unit performs a variance analysis on results from said optimization experiments and generates, from the results of said optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to the operating condition of the device;

a management unit configured to generate a management profile relating the quality of service and the operating condition of the system based on results of the variance analysis, said first data and said second data; and

a performance table storage unit configured to store the management profile generated by the management unit.

18. (previously presented) The apparatus of claim 17, wherein the optimization unit performs said optimization analysis based further on a user profile containing information concerning a user's preferences for operating the system.

19. (previously presented) The apparatus of claim 17, wherein the optimization unit performs said optimization analysis based further on a pattern of usage of the system.

20. (previously presented) The apparatus of claim 17, further comprising a control unit configured to adaptively control the system based on the management profile.

21. (previously presented) The apparatus of claim 17, wherein the control unit is configured to select one of the plurality of control factors based on the management profile to control the operating condition of the system.

22. (previously presented) The apparatus of claim 17, wherein said optimization unit performs said optimization analysis on power consumption of the system as said operating condition.

23. (previously presented) The apparatus of claim 21, wherein said control unit selects one of the plurality of control factors by using the management profile to determine a level of the operating condition corresponding to a selected quality of service level, determining a result of the optimization experiment corresponding to the determined level of the operating condition and selected quality of service level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

24. (previously presented) The apparatus of claim 21, wherein said control unit selects one of the plurality of control factors by using the management profile to determine a quality of service level corresponding to a selected operating level, determining a result of the optimization analysis corresponding to the determined quality of service level and selected operating level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

25. (previously presented) The apparatus of claim 17, wherein said optimization unit performs said optimization analysis using one of Design of Experiments (DOE) experiment, an Orthogonal Array experiment, a Latin Square Design experiment, and a Taguchi style experiment.

26. (new) A method of controlling a system using a controller and a management profile that relates a quality of service measure for the system and an operating condition for the system, the method comprising:

(a) monitoring aspects of the system during its operation, including the operating condition and the quality of service measure;

(b) performing an on-line optimization analysis comprising optimization experiments based on the monitored aspects of the system during the operation of the

system to optimize the quality of service measure and the operating condition based on a plurality of control factors for controlling the system;

(c) performing a variance analysis on results from said optimization experiments;

(d) generating, from results of said optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to the operating condition; and

(e) updating the management profile based on results of the variance analysis, said first data and said second data to produce an updated management profile.

27. (new) The method of claim 26, wherein (b) performing comprises performing the on-line optimization analysis based further on a user profile containing information concerning a user's preferences for operating the system.

28. (new) The method of claim 26, wherein (b) performing comprises performing the on-line optimization analysis based further on a pattern of usage of the system.

29. (new) The method of claim 26, and further comprising adaptively controlling the system based on the updated management profile.

30. (new) The method of claim 26, and further comprising selecting one of the plurality of control factors based on the updated management profile, and controlling the operation condition of the device by adjusting the selected control factor.

31. (new) The method of claim 30, wherein (e) updating comprises updating the management profile by filtering results of the optimization analysis.

32. (new) The method of claim 31, wherein selecting comprises selecting one of the plurality of control factors by using the management profile to determine a level of the operating condition corresponding to a selected quality of service level, determining a result of the optimization analysis corresponding to the determined level of the operating condition and selected quality of service level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

33. (new) The method of claim 31, wherein selecting comprises selecting one of the plurality of control factors by using the management profile to determine a quality of service level corresponding to a selected level of the operating condition, determining a result of the optimization analysis corresponding to the determined quality of service level and selected operating condition level, and determining as the selected control factor a control factor corresponding to said determined result of the optimization analysis.

34. (new) The method of claim 26, wherein (b) performing comprises performing a fractional factorial style experiment.

35. (new) The method of claim 26, wherein (b) performing comprises performing a full factorial style experiment.

36. (new) The method of claim 26, wherein (b) performing comprises performing one of a Design of Experiments (DOE) experiment, an Orthogonal Array experiment, a Latin Square Design experiment, and a Taguchi style experiment.

37. (new) The method of claim 26, wherein (a) monitoring comprises monitoring a computer-controlled electronic device.

38. (new) The method of claim 26, wherein (a) monitoring comprises monitoring a computer-controlled mechanical device.

39 (new) The method of claim 26, wherein (a) monitoring comprises monitoring power consumption of the system as said operating condition.

40. (new) A computer-readable medium storing instructions suitable for controlling a system using a controller and a management profile that relates a quality of service measure for the system and an operating condition for the system, the computer-readable medium comprising:

- (a) program instructions for monitoring aspects of the system during its operation, including the operating condition and the quality of service measure;
- (b) program instructions for performing an optimization analysis comprising optimization experiments based on the monitored aspects of the system during the operation of the system to optimize the quality of service measure and the operating condition based on a plurality of control factors for controlling the system;
- (c) program instructions for performing a variance analysis on results from said optimization experiments;
- (d) program instructions for generating, from results of said optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to the operating condition; and
- (e) program instructions for updating the management profile based on results of the variance analysis, said first data and said second data to produce an updated management profile.

41. (new) An apparatus suitable for adaptively controlling a system, the apparatus comprising:

a system management unit configured to monitor aspects of the system during the operation of the system, including an operating condition and a quality of service measure;

an on-line optimization unit configured to perform an optimization analysis comprising optimization experiments based on the monitored aspects of the system during operation of the system to optimize the quality of service measure and the operating condition based on a plurality of control factors for controlling the system, perform a variance analysis on results from said optimization experiments and generate, from results of said optimization experiments, first data relating each of the plurality of control factors to the quality of service measure and second data relating each of the plurality of control factors to the operating condition; and

a performance table storage unit coupled to the system management unit and the on-line optimization unit and configured to store a management profile that relates the operating condition with the quality of service measure for the system and to update the management profile held in the performance table storage unit based on results of the variance analysis, said first data and said second data to produce an updated management profile.

42. (new) The apparatus of claim 41, wherein the on-line optimization unit performs the optimization analysis based further on a user profile containing information concerning a user's preferences for operating the system.

43. (new) The apparatus of claim 41, wherein the on-line optimization unit performs the optimization analysis based further on a pattern of usage of the system.

44. (new) The apparatus of claim 41, further comprising a control unit configured to adaptively control the system based on the updated management profile.

45. (new) The apparatus of claim 44, wherein the control unit selects one of the plurality of control factors based on the management profile, and adjusts the selected control factor to control the operating condition of the system.

46. (new) The apparatus of claim 41, wherein said system management unit monitors power consumption of the system as said operating condition.